

III. REMARKS:

The specification has been amended to correct a typographical error. Specifically, the specification inadvertently refers to “Japanese Laid-Open Patent No. 2002-118842,” which pertains to an “Advertisement Distribution Method and Advertisement Display Method.” The specification has been amended to refer to --Japanese Patent Application No. 2002-118842,” which corresponds to Japanese Laid-Open Patent No. 2003-315030. The specification has also been amended to incorporate subject matter from L.A. Zaden, FUZZY SETS AND APPLICATIONS 31 (John Wiley and Sons 1987), which is a reference incorporated by reference by Applicants’ specification as originally filed.

Claims 6, 9 and 10 have been amended to address minor informalities. The present amendment has no further limiting effect on the scope of these claims.

The Examiner objects to the drawings because (i) the Examiner alleges that Figures 13 and 14 should be labeled as “Prior Art” and (ii) because the Examiner alleges that the block elements in Figures 1, 11, 13 and 14 should be labeled “with its description” (Office Action, dated November 16, 2006, at 3, lines 1-4). Applicant traverses the Examiner’s objections to the drawings for the following reasons.

First, Figures 13 and 14 are not “prior art.” Therefore, the drawings should not be labeled as “prior art.” Second, the block elements in Figures 1, 11, 13 and 14 are properly and sufficiently labeled by character references in accordance with 37 C.F.R. § 1.84(p). For all of the above reasons, Applicants’ drawings are in compliance with the rules and regulations of the United States Patent and Trademark Office (USPTO).

The present amendment adds no new matter to the above-captioned application.

A. The Invention

The present invention pertains broadly to a status discriminating apparatus and method such as may be used to observe the status of a patient in a hospital or to observe the status of an animal or a machine. In accordance with an apparatus embodiment of the present invention, a status discriminating apparatus is provided that includes the elements recited by independent claim 6. In accordance with a method embodiment of the present invention, a status discriminating method is provided that includes the steps recited by independent claim 9. Various other embodiments, in accordance with the present invention, are recited in the independent claims.

An advantage of the various method and apparatus embodiments, in accordance with the present invention, is that the status of a human, animal, machine, and the like, may be determined in a cost efficient manner and with high precision by utilizing ultrasonic wave technology.

B. The Rejections

Claims 9-12 stand rejected under 35 U.S.C. § 112, second paragraph, as indefinite.

Claims 6-12 stand rejected under 35 U.S.C. § 102(b) or 102(e) as anticipated by each of the following documents: U.S. Patent 5,834,648 to Wang et al. (hereafter, the “Wang Patent”); JP 58-071417 to Shirasaka (hereafter, the “Shirasaka Document”); and U.S. Patent 6,397,656 to Yamaguchi et al. (hereafter, the “Yamaguchi Patent”).

Applicants respectfully traverse the Examiner's rejections and request reconsideration of the above-captioned application for the following reasons.

C. Applicants' Arguments

In view of the present amendment, claims 6-12 are now in compliance with 35 U.S.C. § 112.

i. Section 102 Rejections

Anticipation under 35 U.S.C. § 102 requires showing the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984). In this case, the Examiner has not established a prima facie case of anticipation against Applicants' claims because each of the Wang Patent, the Shirasaka Document and the Yamaguchi Patent fails to teach each and every limitation of the claimed invention.

ii. The Wang Patent

The Wang Patent discloses a "method for identifying a compound using an acoustic microscope," which is a non-destructive method of identifying a type of compound in a sample using an acoustic microscope as shown in Figure 1 (See Abstract of the Wang Patent). The Wang Patent discloses identifying the type of compound used in an integrated circuit package (6) by comparing attributes of the tested molding compound with known

attributes of known compounds to identify the compound being evaluated, wherein the attributes that are compared include voltage, attenuation, peak frequency, average frequency, and the velocity of reflected sound (See Abstract). The Wang Patent discloses that by transmitting a sound burst (20) and measuring the relative strength of a reflected ultrasonic wave entering transducer (2) the presence of voids in the sample (6) may be detected (col. 3, lines 24-56, and col. 4, lines 26-42).

The Wang Patent does not teach, or even suggest, (1) “an ultrasonic vibrator arranged to transmit an ultrasonic wave into the liquid and to receive an ultrasonic wave reflected from a surface of the liquid” and (2) “the microcomputer calculates a risk associated with the detection object from a change in maximum amplitude of the received reception signal” as recited by independent claim 6. The Wang Patent also does not teach, or even suggest, (3) “compiling time series data of maximum amplitude values of reception signals detected at specific time intervals by the ultrasonic vibration detecting sensor” and “calculating a risk value by applying the calculated standard deviation and extracted spectrum peak to a fuzzy If-Then rule” as recited by independent claim 9.

In other words, the Wang Patent discloses the measurement of acoustic waves of a sound burst (6) that are reflected off the surface of a sample (6) as shown in Figure 1 (reproduced below for the Examiner’s convenience).

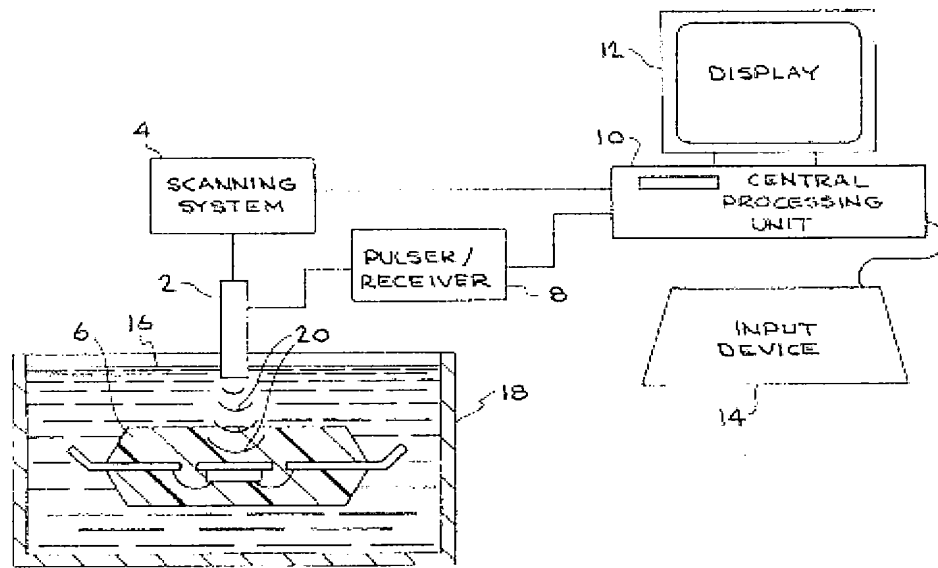


Figure 1 of Wang Patent

The Wang Patent does not teach, or suggest, an “ultrasonic vibrator” arranged to receive an “ultrasonic wave reflected from a surface of the liquid” into which an ultrasonic wave is transmitted as recited by claim 6 of the present application. A person of ordinary skill in the art would instantly appreciate this fact from Figure 1 of the Wang Patent (c.f., Figure 1 of the above-captioned application). The Wang Patent is also completely silent regarding the application of “a fuzzy If-Then rule” as employed by the embodiments of claims 7 and 9 of the present invention.

iii. The Shirasaka Document

The Shirasaka Document discloses an “ultrasonic wave pulse Doppler blood stream device,” as shown in Figure 1, wherein an ultrasonic wave generator (4) is used to transmit an ultrasonic wave to a metal object (18) in the bloodstream (6) and the ultrasonic wave

generator (4) detects a Doppler shift in the reflected ultrasonic wave (See English Abstract of the Shirasaka Document). Shirasaka discloses that the metal piece (18) is kept stationary at a specific distance from the ultrasonic wave generator (4) by water (See English Abstract).

The Shirasaka Document does not teach, or even suggest, (1) “an ultrasonic vibrator arranged to transmit an ultrasonic wave into the liquid and to receive an ultrasonic wave reflected from a surface of the liquid” and (2) “the microcomputer calculates a risk associated with the detection object from a change in maximum amplitude of the received reception signal” as recited by independent claim 6. The Wang Patent also does not teach, or even suggest, (3) “compiling time series data of maximum amplitude values of reception signals detected at specific time intervals by the ultrasonic vibration detecting sensor” and “calculating a risk value by applying the calculated standard deviation and extracted spectrum peak to a fuzzy If-Then rule” as recited by independent claim 9.

A person of ordinary skill in the art would immediately recognize that the Shirasaka Document discloses a device that measures Doppler Shift, which pertains to wave frequency, and not “maximum amplitude” of the “received reception signal” in accordance with the presently claimed invention. In addition, the Shirasaka Document is completely silent regarding the application of “a fuzzy If-Then rule” as employed by the embodiments of claims 7 and 9 of the present invention.

iv. The Yamaguchi Patent

The Yamaguchi Patent discloses a “system and method for detecting liquid serving as

object to be detected in vessel using ultrasonic sensor,” wherein an ultrasonic sensor includes body (1) and detector (2) mounted on the outside bottom face of a liquefied petroleum gas (LPG) tank (3) as shown in Figure 1 (reproduced below).

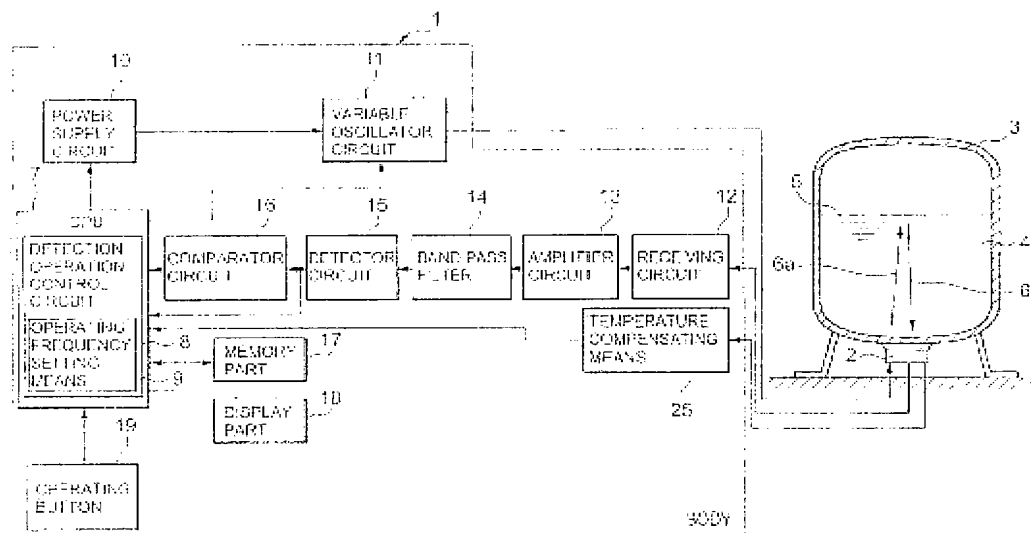


FIG.1

The Yamaguchi Patent discloses that the detector (2) emits an ultrasonic wave (6a) that reflects off the liquid level (5) and detects the reflected wave (6b) so as to detect the level of liquid stored in the LPG tank (3), (col. 1, lines 7-13; and col. 4, lines 60-62). In sum, the Yamaguchi Patent pertains to a method and apparatus for detecting the level of the liquid through which an ultrasonic wave travels. The Yamaguchi Patent does not pertain to a method for detecting the “behavior of a detection object” in accordance with the present invention.

Thus, the Yamaguchi Patent does not teach, or suggest, (1) “an ultrasonic vibrator arranged to transmit an ultrasonic wave into the liquid and to receive an ultrasonic wave reflected from a surface of the liquid, which serves to detect behavior of a

detection object” and (2) “the microcomputer calculates a risk associated with the detection object from a change in maximum amplitude of the received reception signal” as recited by independent claim 6. The Wang Patent also does not teach, or even suggest, (3) “compiling time series data of maximum amplitude values of reception signals detected at specific time intervals by the ultrasonic vibration detecting sensor” and “calculating a risk value by applying the calculated standard deviation and extracted spectrum peak to a fuzzy If-Then rule” as recited by independent claim 9.

A person of ordinary skill in the art would instantly realize that the “liquid” cannot also be the “detection object” in accordance with Applicants’ claims. A person of ordinary skill in the art would instantly appreciate this fact from Figure 1 of the above-captioned application (c.f., Figure 1 of the Yamaguchi Patent). For this reason alone, the subject matter of the Yamaguchi Patent cannot anticipate the subject matter of independent claims 6 and 9. The Yamaguchi Patent is also completely silent regarding the application of “a fuzzy If-Then rule” as employed by the embodiments of claims 7 and 9 of the present invention.

For all of the above reasons, neither the Wang Patent, the Shirasaka Document nor the Yamaguchi Patent teach, or suggest, each and every limitation of Applicants’ claimed invention. In addition, neither the Wang Patent, the Shirasaka Document nor the Yamaguchi Patent, teach or suggest the combination of steps recited by step (a) and substeps (i) to (v) of step (b) recited by independent claim 9.


IV. CONCLUSION

Claims 6-12 are now in compliance with 35 U.S.C. § 112. Furthermore, the Examiner has not established a prima facie case of anticipation against claims 6-12 of the above-captioned application because neither the Wang Patent, the Shirasaka Document nor the Yamaguchi Patent teach, or suggest, each and every element of the claimed invention.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

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